

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* MARC WEYDERT,  
UWE ERNST FRANK,  
RENE HEAN ZIMMER  
and FILOMENO G. CORVASCE

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Appeal 2007-4408  
Application 10/603,023  
Technology Center 1700

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Decided: December 13, 2007

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Before EDWARD C. KIMLIN, CHARLES F. WARREN, and  
PETER F. KRATZ, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the Examiner's rejection of claims 1-12, and 16. The claims of the Application have been twice rejected. Claim 1 is illustrative:

1. A tire having a tread comprised of a vulcanizable rubber composition comprising:

- (A) 100 parts by weight of at least one diene-based elastomer wherein selected from the group consisting of natural or synthetic cis 1,4-polyisoprene rubber, 3,4-polyisoprene rubber, styrene/butadiene copolymer rubbers, isoprene/butadiene copolymer rubbers, styrene/isoprene copolymer rubbers, styrene/isoprene/butadiene terpolymer rubbers, cis 1,4-polybutadiene rubber and medium to high vinyl polybutadiene rubber having a vinyl 1,2- content in a range of about 15 to about 85 percent and emulsion polymerization prepared butadiene/acrylonitrile copolymers;
- (B) from about 1 to about 60 phr of a starch/synthetic plasticizer composite; and
- (C) from about 0.1 to about 10 phr of an adduct of maleic anhydride and polybutadiene.

The Examiner relies upon the following references as evidence of obviousness:

Corvasce	5,672,639	Sep. 30, 1997
Huynh-Tran	US 2003/0152758 A1	Aug. 14, 2003

Appellants' claimed invention is directed to a tire having a tread comprised of a vulcanizable rubber composition. The rubber composition comprises a diene-based elastomer from the recited group, a starch/synthetic plasticizer composite and an adduct of maleic anhydride and polybutadiene.

Appealed claims 1-12, and 16 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Corvasce in view of Huynh-Tran.

Appellants do not set forth an argument that it reasonably specific to any particular claim on appeal. Accordingly, all of the appealed claims stand or fall together with claim 1.

We have thoroughly reviewed each of Appellants' arguments for patentability, as well as the Specification data relied upon in support thereof. However, we are in complete agreement with the Examiner that the claimed subject matter would have been obvious to one of ordinary skill in the art within the meaning of § 103 in view of the applied prior art. Accordingly, we will sustain the Examiner's rejection.

There is no dispute that Corvasce, like Appellants, discloses a tire having a tread comprised of a vulcanizable rubber composition which comprises one of the presently claimed diene-based elastomers and a starch/synthetic plasticizer composite. As recognized by the Examiner, and stressed by Appellants, Corvasce does not disclose the presently claimed adduct of maleic anhydride and polybutadiene in the rubber composition. However, we fully concur with the Examiner that Huynh-Tran evidences the obviousness of including an adduct of maleic anhydride and polybutadiene in the rubber composition of Corvasce for the purpose of enhancing the adhesion between the rubber composition and synthetic fibers of polyester, nylon and the like. Huynh-Tran provides a clear teaching that it was known in the art to use maleinized polybutadiene instead of a resorcinol-formaldehyde-latex to improve the adhesion between the rubber composition and synthetic fibers, citing an article entitled "Maleinized Polybutadiene Latex for Fiber to Rubber," authored by A. S. Estrin and R. W. Nalepa.

Corvasce teaches that fillers, such as short discrete fibers of cellulose, aramid, nylon and polyester, may be included in the rubber composition, and Huynh-Tran teaches that it was known in the art to use maleinized polybutadiene to improve the adhesion of the fibers used by Corvasce. Huynh-Tran provides an improved form of maleinized polybutadiene.

Appellants submit that "Corvasce is silent regarding the use of an adduct of maleic anhydride and polybutadiene in the tread compound" (Principal Br. 4, first para.). However, Corvasce's silence with respect to the adduct does not undermine the obviousness of using a known adhesion promoter for the synthetic fibers incorporated in the rubber composition of Corvasce.

Appellants also maintain that "Corvasce teaches only to use a silane coupling agent with the starch/synthetic plasticizer composite filler in a tread compound" (Principal Br. 4, second para.). However, the silane coupling agent of Corvasce is used for a purpose other than enhancing adhesion between the synthetic fibers and the rubber composition, i.e., Corvasce teaches the *optional* use of a silane coupling agent if silica, another optional component, is added to the rubber composition. Corvasce teaches that the silane coupling agent bonds to both the starch composite and the elastomer. Accordingly, we find that it would have been obvious for one of ordinary skill in the art to include both the silane coupling agent and the adduct of maleic anhydride and polybutadiene disclosed by Huynh-Tran in the rubber tread composition of Corvasce. It is not a matter of substituting the adduct of Huynh-Tran for the silane coupling agent of Corvasce but, rather, it

would have been obvious for one of ordinary skill in the art to incorporate both additives in the composition of Corvasce for separate purposes.

Appellants rely upon Specification data as "evidence of unexpected results to obviate any finding of obviousness" (Principal Br. 6, last para.). According to Appellants, "the data of Table 7 indicate that, for a loss modulus measured at 50°C, a much wider range of values for G" exists for starch/synthetic plasticizer composite filler and rubber compositions having the maleic anhydride/polybutadiene adduct than for starch/synthetic plasticizer composite filler and rubber compositions having silane" (Principal Br. 7, first sentence). Appellants submit that "the physical properties of the rubber composition may be tailored to provide a wider range of tear and hysteresis values than is possible with silane coupling agents" (Principal Br. 8, last para.). However, we concur with the Examiner that the Specification data is not commensurate in scope with the degree of protection sought the appealed claims. The Specification examples comprise adduct concentrations of 1.5-6 phr, which values are not representative of the claimed lower limit of 0.1 phr and upper limit of 10 phr. The lowest amount exemplified in the Specification, 1.5 phr, is fifteen times greater than the claimed lower limit of 0.1 phr. There is no evidence that the Specification results extend to compositions comprising concentrations of the adduct throughout the claimed range. Also, by virtue of the claim language "comprising," the appealed claims encompass compositions comprising the exemplified silane coupling agents and adduct.

Stated otherwise, the appealed claims do not exclude silane coupling agents from the rubber composition.

Furthermore, since silica and a silane coupling agent are optional components in the rubber composition of Corvasce, it would have been obvious for one of ordinary skill in the art to formulate a rubber composition for a tire tread without these components, but include the claimed adduct for the purpose of improving adhesion between the filler of synthetic fibers and the elastomer composition. Accordingly, to the extent Appellants' Specification data evidences unexpected results, it is our judgment that, on balance, the evidence for the obviousness of including the claimed adduct in a rubber composition comprising synthetic fibers outweighs the evidence of nonobviousness proffered by Appellants. *In re May*, 574 F.2d 1082, 1092 (CCPA 1978); *In re Nolan*, 553 F.2d 1261, 1267 (CCPA 1977).

In conclusion, based on the foregoing, the Examiner's decision rejecting the appealed claims is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(effective Sept. 13, 2004).

AFFIRMED

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